UNITED NATIONS

EP

UNEP/EA.1/2/Add.1

Distr.: General
12 April 2014

Original: English

United Nations Environment Assembly of the United Nations Environment Programme

United Nations Environment Assembly of the United Nations Environment Programme
First session
Nairobi, 23–27 June 2014
Items 5 and 6 of the provisional agenda*

Policy issues

Follow-up to and implementation of the outcomes of United Nations summits, in particular the United Nations Conference on Sustainable Development, and major intergovernmental meetings of relevance to the United Nations Environment Assembly

Implementation of Governing Council decision 27/2

Strengthening the science-policy interface

Report of the Executive Director

Summary

The present report summarizes the key actions that the United Nations Environment Programme (UNEP) is undertaking to strengthen the science–policy interface to better address the changing nature and implications of human–environment interactions, global megatrends and policies on sustainable development and human well-being.

The actions taken include expanding partnerships with centres of excellence and international research programmes to underpin the science in the UNEP programme of work; evaluating, benchmarking and implementing concepts, approaches and good practice to produce integrated assessments; working closely with member States, major groups and stakeholders and multilateral environmental agreements to publish up-to-date, quality-assured national data flows through the UNEP Live web-based knowledge management system; linking to more contextualized knowledge from Governments to support policy-relevant analysis; collaborating with other institutions to undertake a gap analysis and evaluation of emerging issues; implementing an organization-wide knowledge management system based on UNEP Live to share knowledge assets; disseminating evidence-based environmental information to raise public awareness on critical and emerging environmental issues; and working closely with all relevant United Nations bodies on the production of the Global Sustainable Development Report and the indicators and targets to support the post-2015 agenda and the sustainable development goals.

* UNEP/EA.1/1.

K1400701 080514

I. Background

1. The aim of the present report is to provide the United Nations Environment Assembly of the United Nations Environment Programme (UNEP) with an overview of the actions that UNEP is undertaking to strengthen the science-policy interface, as called for by Heads of State and Government in paragraphs 48, 76 (g), 85 (k), 88 (d) and 276 of the outcome document of the United Nations Conference on Sustainable Development, entitled "The future we want".[1]

2. A strong science-policy interface depends upon environmental data that are quality assured, timely and easily accessible; policy-relevant information; authoritative assessments, based on credible science that has been published in peer-reviewed literature; government reports, derived from multi-stakeholder mechanisms; collaborative partnerships, including with the multilateral environmental agreements; international instruments; and analyses of emerging issues and critical gaps.

3. In response to paragraph 8 of decision 27/2 of the Governing Council of UNEP[2] on promoting a strong science-policy interface, UNEP is expanding its partnerships with centres of excellence and international research programmes; promoting international benchmarking of integrated assessment and policy analysis; working closely with member States, major groups and stakeholders and multilateral environmental agreements to publish up-to-date, quality-assured national data flows on the UNEP Live web-based knowledge management system;[3] linking to more contextualized knowledge from Governments to support policy-relevant analysis; collaborating with other institutions to undertake analysis of critical gaps and emerging issues; implementing an organization-wide knowledge management system based on UNEP Live to share knowledge assets; disseminating evidence-based environmental information to raise public awareness on critical and emerging environmental issues; and working closely with all relevant United Nations bodies on the production of the Global Sustainable Development Report and the indicators and targets to support the post-2015 agenda and the sustainable development goals.

4. To inform its deliberations at its first session, the United Nations Environment Assembly will have before it a number of interrelated documents on various initiatives and processes related to its core mandate. These include the present report and the following documents:

(a) Report of the Executive Director on support structures and processes for keeping the world environment situation under review, including a progress report on UNEP Live (UNEP/EA.1/4/Add.1);

(b) Note by the secretariat on the 2014 UNEP Year Book (UNEP/EA.1/INF/2);

(c) Note by the secretariat on the Eye on Earth initiative (UNEP/EA.1/INF/11);

(d) Note by the secretariat on the Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA) (UNEP/EA.1/INF/12);

(e) Note by the secretariat on the GEMS/Water Programme: status report and pathways to the future (UNEP/EA.1/INF/13);

(f) Note by the secretariat on proposed procedures to enhance future assessment processes (UNEP/EA.1/INF/14).

II. Building on past successes

5. For more than four decades, UNEP has fostered dynamic growth in multilateral environmental institutions, international instruments, scientific assessments, expert panels and information networks, and has served as a robust and credible channel for knowledge-sharing and collaboration, through which decision-making processes at all levels, from regional to global, have been facilitated and supported.

---

[1] General Assembly resolution 66/288, annex.

[2] In paragraph 8 of decision 27/2, the Governing Council decided that the governing body of UNEP would promote a strong science-policy interface by reviewing the state of the environment and by building on existing international instruments, assessments, panels and information networks, including through an enhanced summary for policy makers of the Global Environment Outlook and, in that regard, requested the Executive Director to identify critical gaps and present a report, with recommendations, to the governing body.

3 http://www.uneplive.org.

6. UNEP has a successful track record in ensuring that emerging and critical environmental problems are given an elevated status, both within the United Nations system and on the broader agenda of the international community. This approach has led to the establishment of multilateral environmental agreements such as the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer; the Basel Convention on the Control of Transboundary Wastes and their Disposal, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Stockholm Convention on Persistent Organic Pollutants, which enjoy universal or near-universal membership; the Intergovernmental Panel on Climate Change; the recently established Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services; the International Resource Panel; and the recently launched Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants. Such examples illustrate the diversity of ways in which UNEP has built an effective international engagement with Governments and stakeholders to bridge the science-policy interface and provide links to a body of information and knowledge relevant to a variety of target audiences.

7. UNEP has also been recognized for its ability to convene experts and to provide a rationale and coordinating mechanism for the conduct of intergovernmental multi-stakeholder scientific assessments on specific topics and formats for synthesizing, communicating current states of knowledge and linking them to action. Examples of this structured approach include the Global Environment Outlook (GEO) series, the emissions gap reports, the Integrated Assessment of Black Carbon and Tropospheric Ozone and the UNEP Year Book series on emerging issues.

8. Recent large-scale assessments, however, including GEO-5, the Green Economy initiative, the Economics of Ecosystems and Biodiversity initiative and reports by the International Resource Panel, as well as the establishment of the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants, refer to the need for more integrated information and solution-oriented approaches that rely on improved public policy analysis, greater use of research in government reports, wider use of national sources in non-English literature and up-to-date evidence from the business sector, which inform society not only about risks, both current and unintended, but also opportunities and available choices.

9. An improved science-policy interface therefore requires enhanced communication between scholars, experts, practitioners and policymakers to foster a mutual understanding of the policy needs and critical gaps in knowledge to address the rapid environmental, social and economic changes that are occurring at the national, regional and global level.

III. Strengthening the science-policy interface

A. International benchmarking, emerging issues and critical gaps

10. UNEP is currently reviewing the methods and processes used for its assessment activities in line with best practices so as to benchmark them within the evolving policy orientation of continuous improvements in transparency, legitimacy and scientific credibility. Early results from that work suggest that reflexive or anticipatory decision-making approaches and interventions would benefit from integrated environmental assessments being designed and framed in tractable ways so that they offer specific modes and loci for action and so that assessment processes in general are supported by more dynamic and innovative forms of knowledge exchange.

11. The strengthening of the science-policy interface also requires an evolution in the normative structures, systems and modalities of UNEP with the aim of promoting knowledge that is:

(a) **Wide**. This involves engaging with a broader range of networks of expertise and online "communities of practice", rather than relying on small sets of experts. Experience in various fields shows that with a sufficiently large population of experts in different knowledge systems with different perspectives, a new depth of knowledge and innovation can emerge, one that is geographically and epistemologically more robust;

(b) **Boundary-free**. This means drawing on experts outside the traditional pool of academic experts such as practitioners with traditional knowledge or with practical experience lying outside the traditional disciplinary silos;

(c) **Unresolved**. This means that knowledge can develop and scientists can make progress together, even though they may be in fundamental disagreement. Rapid development of ideas and responses can be gained through the iteration of solutions through networks of experts.

12. Adapting the integrated environmental assessment processes and outputs of UNEP to more networked and inclusive knowledge generation will be facilitated by innovative web-based technologies and the adoption of international standards for quality assurance in the field of informatics, including the Dublin Core Schema for products, and the Open Geospatial Consortium and International Organization for Standardization standards for data.

13. There is also a growing need for a new generation of tools, models and frameworks better able to integrate information generated through different paradigms, including local and traditional knowledge. As demonstrated in recent International Energy Agency processes that include option-oriented policy analysis (such as GEO-5, the fifth Assessment Report of the United Nations Intergovernmental Panel on Climate Change and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services), deliberately inclusive knowledge systems will be essential to the post-2015 agenda and the development of sustainable development goals. An international benchmarking exercise will be developed during the course of GEO-6 to elucidate the ways in which different sources of knowledge can be referenced and used in developing assessment results.

14. Knowledge about emerging issues is heavily influenced by the internet, where simple epistemological foundations for defining what is known and unknown no longer exist; instead, networked facts and evidence exist within a web of links between peer-reviewed literature, practitioners and government reports in a manner that makes them useful and understandable.

15. Based on such an approach, a comprehensive list of environmental challenges and emerging issues that have an impact on human well-being was recently compiled by scientists and experts, both external and within UNEP, building on those issues identified by UNEP in 2012 and in the outcome document of the United Nations Conference on Sustainable Development, entitled "The future we want".[4] The list included irreversible changes in the Earth system, beyond the magnitude of natural variability; the exponential increase in greenhouse gases; the impact of climate change; the impact of air pollution on health and ecosystems; disruption in nutrient cycles; degradation, disruption and loss of biodiversity ecosystems; a lack of recognition of the value of nature; inadequate access to fresh water; unsustainable, unsafe and hazardous industrial practices; release of harmful and hazardous wastes into the environment; rapid urbanization; unsustainable consumption of non-renewable energy and material resources; food wastage; environmental crime and illicit activities; overexploitation of resources; unequal access and rights to natural capital; human migration; insufficient resource management resulting from lack of capacity; and degradation of the environment and global commons resulting from a range of macroeconomic policies.

16. In 2009, a gap analysis was undertaken for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (UNEP/IPBES/2/INF/1) to better understand how to strengthen the science-policy interface in biodiversity and ecosystem services. The key findings included the following: science–policy interfaces were often created on an ad hoc basis; problems arose when an advisory body responsible for providing scientific input to the policy process was also acting as an initial negotiating platform; there was a lack of shared frameworks, methodologies and a basic understanding of how to respond to the complex nature of biodiversity and ecosystem services; there were fundamental knowledge gaps which compromised the science-policy dialogue; there was no process for providing common and regularly reviewed guidance on a strategic approach to research; there were few processes to ensure the incorporation of non-formal knowledge and mutual learning into policymaking; there was a vast quantity and varying quality of differing, fragmented and sometimes contradictory knowledge available that, without a clear authoritative synthesis, meant that decisions were taken without being informed by the best available knowledge; there were continuing difficulties in ensuring timely scientific advice on emerging issues; and a widespread lack of capacity for brokering knowledge effectively in such a way that it could be used appropriately in decision-making.

17. UNEP plans to undertake a further gap analysis across the environment field in collaboration with ongoing national, regional and international exercises, such as the seventh European Union Environment Action Programme, which identifies many critical gaps in knowledge that will be addressed through Horizon 2020, its framework programme for research and innovation, and as part of the post-2015 agenda. UNEP will use the results of the gap analysis in the GEO-6 assessment and the Global Sustainable Development Report.

B. Technological and social modalities

18. UNEP is responding to the needs of an increasingly digitized, rapidly evolving knowledge-based society by establishing a web-based knowledge management system, UNEP Live, to

[4] General Assembly resolution 66/288, annex.

share, organize, utilize and disseminate national, regional and global information more effectively. UNEP Live and its support for global assessments is described in greater detail in the report of the Executive Director on support structures and processes for keeping the world environment situation under review, including progress on UNEP Live (UNEA/EA.1/4/Add.1). This is an important process in addressing the problem of fragmented information and data across multiple knowledge systems.

19. The algorithmic and computational technologies upon which UNEP relies indirectly comprise databases, massively parallel computing to manipulate and model data to monitor Earth system processes, and a broad spectrum of analytical tools for policy analysis, indicator development, mapping and assessment. In order to strengthen its own analytical capabilities to make optimal use of data and information from individual countries and regional and global sources, UNEP is implementing an updated information and communications technology governance framework to provide cost-effective solutions, such as cloud services, and the tools needed to work with big data derived from global networked observations, multimedia and sensor web-enabled monitoring networks, citizen science research programmes, mesh networking of expertise and e-publishing.

20. UNEP supports a complex mix of social processes to help build its knowledge base, including scientific panels, professional networks, expert workshops and meetings, in particular in the context of its GEO flagship and its more thematic assessments. A systematic process is under way to establish partnerships with leading academies of research and international research programmes, such as the Future Earth initiative and GEO/Global Earth Observation System of Systems, to enhance the existing expert networks of UNEP, such as the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, the Intergovernmental Panel on Climate Change and the International Resource Panel, in participating and contributing to regional and global assessments. Support for regional environment information and observation networks and capacity development in assessment methodologies through regional meetings and the United Nations Development Assistance Framework is also planned in 2014–2015.

21. UNEP is connecting existing networks of experts and government representatives within communities of practice, via the UNEP Live platform, to enable greater interaction and sharing of knowledge, best practice, solutions and policy options. New norms and practices for identifying and engaging with those expert communities will be established, based on regional processes, a wider and more strategic web presence, and support for joint open access publishing and novel tracking using sematic ontologies. Such processes will help to ensure that experts are recognized as having contributed to the output and outreach activities of UNEP through a more rigorous digital data and information citation process.

22. UNEP Live is being used as an online platform to provide working areas for critical reviews and to facilitate the integration and synthesis of knowledge from different language and subject domains, using controlled vocabularies and consistent metadata tagging across all types of multimedia.

23. Regional offices and national focal points in particular are being supported to participate in training related to the co-creation of knowledge about environmental priority setting and policy development, for example through bilateral data and information-sharing agreements and regional environmental information network meetings.

24. UNEP is improving the way it measures the outcome and impact of its work, using indicators and quantitative measures to provide feedback and an improved understanding of the ways in which science is being used in policymaking and, eventually, the ways in which policy is affecting the environment. UNEP will also monitor the impact of its science-policy work by measuring the political and societal response to environmental issues through, for example, institutional activities and investment changes, responses to national and regional environmental change and by gauging the outcome of adaptation in terms of ecosystem services, poverty eradication and, in the future, through the sustainable development goals.